55. A projection exposure apparatus for projecting a pattern of mask onto a substrate, said apparatus comprising:

C1 end

at least one lens;

at least one concave mirror; and

at least one diffractive optical element. --

REMARKS

Applicants request favorable consideration and allowance of the subject application in view of the preceding amendment and the following remarks.

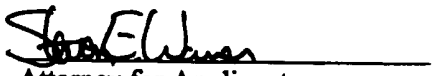
Claims 1-3, 5, 7-13 and 37-55 are presented for consideration. Claims 1, 37 and 55 are independent. Claims 11-13 and 44- 46 have been amended to clarify features of the subject invention, while claims 47-55 have been added to recite additional features of the subject invention. Support for these changes and claims can be found in the original application, as filed. Therefore, no new matter has been added.

Claims 1-3, 5, 7-13 and 37-46 were previously allowed in this application. In addition to these claims being allowable, Applicants submit that claims 47-55 patentably define features of the present invention.

Applicants further submit the instant application is in condition for allowance. Favorable consideration and an early passage to issue are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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APPENDIX A

IN THE CLAIMS:

11. (Amended) A projection optical system according to [any one of Claims 1-3, 5 and 7-10] Claim 1, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$3 < MP/\lambda < 50$$

where MP is a minimum pitch (micron) of the diffractive optical element, and λ is the exposure wavelength (micron).

12. (Amended) A projection optical system according to [any one of Claims 1-3, 5, and 7-10] Claim 1, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$|Ld/Lg2| < 0.2$$

where Ld is the distance between an aperture stop of said second imaging optical system and said diffractive optical element, and Lg2 is the distance from a paraxial image plane position of an intermediate image formed by said first imaging optical system, corresponding to an object point position of said second imaging optical system, to a re-imaging plane where the intermediate image is re-imaged.

13. (Amended) A projection optical system according to [any one of Claims 3, 5 and 7-10] Claim 3, further comprising a field stop adjacent to an intermediate image to be formed by said first imaging optical system.

44. (Amended) A projection optical system according to [any one of Claims 37-43] Claim 37, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$3 < MP/\lambda < 50$$

where MP is a minimum pitch (micron) of the diffractive optical element, and λ is the exposure wavelength (micron).

45. (Amended) A projection optical system according to [any one of Claims 37-43] Claim 37, wherein at least one of said at least one diffractive optical element of said projection optical system satisfies a relation:

$$|Ld/Lg2| < 0.2$$

where Ld is the distance between an aperture stop of said second imaging optical system and said diffractive optical element, and Lg2 is the distance from a paraxial image plane position of an intermediate image formed by said first imaging optical system, corresponding to an object point position of said second imaging optical system, to a re-imaging plane where the intermediate image is re-imaged.

46. (Amended) A projection optical system according to [any one of Claims 39-43] Claim 39, further comprising a field stop adjacent to an intermediate image to be formed by said first imaging optical system.